tions from the Santa Fe Railway Company. The competition between Adamana and this new business resulted in a portion of the vast Painted Desert being added to Petrified Forest National Monument in 1932. (The monument became a national park in 1962.) The railroad's interest in providing stopovers further diminished.

By the time of America's involvement in World War II, the train did not stop near the monument at all. Fewer and fewer people rode the train and, after 70 years of involvement with petrified wood, the railroad quietly ended its connection. Adamana soon became a place of vanished memories of wagonloads of petrified wood, famous people like John Muir and Albert Einstein, scientists abuzz over natural curiosities, visitors struggling with bags of petrified wood, and lost cars in the quicksands of the Puerco River.

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Copper Mining, Railroads, and the "Hellhole of Arizona"

For almost 30 years, various individuals and companies attempted a series of unsuccessful mining ventures in the Silver Bell Mining District, located 35 miles northwest of Tucson, Arizona. In 1903, however, William F. Staunton, E. B. Gage, and Frank M. Murphy played an important role in the ultimate development of the district through their formation of the Imperial Copper Company, a subsidiary of the Development Company of America, headquartered in Tombstone. The Imperial Copper Company was incorporated on May 15, 1903, and soon began systematic mining and development of its property. On January 20, 1904, incorporation papers were filed for the Arizona Southern Railroad Company, with all stock held by the Imperial Copper Company.[1] Although the actual date of completion is unknown, the railroad began operations on September 10, 1904, and by the end of the month had assisted in transporting several thousand tons of ore to the Copper Queen smelter at Douglas, Arizona.

The Arizona Southern Railroad initially was constructed to more efficiently and economically move the mined copper and silver ore to Douglas for reduction. By 1907, however, there was sufficient ore being produced that, to save expenses, the Imperial Copper Company constructed a smelter about 15 miles northeast of Silverbell under its affiliate, the Southern Arizona Smelting Company, for which the town of Sasco was named.

In 1905, two years after the Silverbell mining camp was established by the Imperial Copper Company, the camp's population had increased to 1,000 residents. By 1910, Silverbell was a booming town, with a population of 1,118 residents.[2] The Imperial Copper Company continued to be the primary mining operation in the Silver Bell Mining District until 1911, when the company went bankrupt and sold its holdings to the American Smelting and Refining Company, known today as ASARCO, Incorporated.

After the 1912-1915 copper depression, Asarco began developing its holdings in the dis-

trict. By 1920, a revitalized Silverbell was populated by about 1,200 miners, shopkeepers, other workers, and family members. In addition to a variety of dwellings, the community had the Imperial Hotel, the Imperial Store, a school, a post office, a hospital, two saloons, the Chase and Oeltjen Dairy, a Wells Fargo office, a grocery, a Chinese bakery, three barbers, a shoemaker, a justice of the peace, and a notary public.[3] Law enforcement was provided by several officers over time, including Deputy Sam McEuen, who took cover behind an ore car while he successfully chased Ramón Castro (who had murdered Grazio Manzo) down an abandoned mine tunnel.[4] The town of Silverbell had a notorious reputation for lawlessness, from which it gained its nickname, "The Hellhole of Arizona."

With the cessation of major mining activities in the district in the 1920s, Silverbell declined in population to the point that only 45 residents remained by 1931, of which only 10 resided within the town proper.[5] The historic townsite was abandoned in 1954, when Asarco began open pit operations and established a new town of Silver Bell, four miles to the southeast. All surviving company-owned buildings from the old town were moved to the new location.

Since 1988, archeological and archival investigations of the Silver Bell Mining District have been ongoing. In 1991, excavations were undertaken at three sites that were identified as the historic Silverbell townsite, the town dump, and the Arizona Southern Railroad. The goals of this phase of the project were not only to investigate the recorded sites and mitigate anticipated impacts from mining expansion, but also to produce a comprehensive history of the Silver Bell Mining District. One of the primary questions to be answered was: How were the development and growth of the Silver Bell mining industry, the Arizona Southern Railroad, and the town of Silverbell related?

As early as May 1903, existing railroads made attempts to establish a line to the Silver Bell Mining District, but with no success. After the incorporation papers for the Arizona Southern Railroad Company were filed on January 20, 1904, it became General Manager Staunton's task to build the railroad between Silverbell and Red Rock, on the Southern Pacific line. By the end of the month, a contract was awarded to Grant Brothers of Los Angeles, an experienced railroad contracting firm. Construction of the standard gauge railroad began with grading at Red Rock on February 17, 1904, and took seven months, with 600 to 700 men working day and night shifts.[6] The first nine miles of the line from its junction with the Southern Pacific Railroad at Red Rock were across essentially level desert terrain that presented no engineering or construction difficulties other than the occasional installation of small trestles to handle flash floods; however, the remaining 12 miles of the line posed a problem. Continuing toward Silverbell, the grade increases to more than two percent just north of Jesuit Hill and Imperial Creek (now Silver Bell Wash). At that location, a wye was constructed for turning the locomotives. The construction of the railroad grade up Jesuit Hill and into the camp was accomplished through the means of one-and-one-half switchbacks (i.e., three switches), where a maximum grade of 3.4 percent was reached.[7] Although the switchbacks solved the problem of the climb into the camp, they created another problem: the uneven number of switches meant that the train either had to back into Silverbell, or, after leaving the mining camp, it had to back into Red Rock, more than 20 miles away. Thus, if the train were short enough, the wye was used to move the locomotives to the front after leaving Silverbell.

In addition to the grade problems caused by the elevation of the camp, Imperial Creek had to be crossed in two places. Just before reaching Jesuit Hill, a 76-foot-long, five-span trestle was built across the wash. Although the locations of both ends of this trestle have been identified, no remains have been found of any portion of it. A second trestle, measuring 106 feet in length, was built across Imperial Creek within the camp's boundaries, and a wagon road was built underneath it. No evidence remains of this six-span trestle, which is now buried by a mine dump.

Besides transporting ore to the Douglas and Sasco smelters, the railroad also provided passenger and mail delivery service between Silverbell and Red Rock, from where a connection could be made to Tucson on the Southern Pacific Railroad. This service continued after the closure of the Sasco smelter in 1910. During its boom years, tours to Silverbell were offered to Tucson residents, with passengers riding either on the train itself or in converted Cadillac, Oldsmobile, Buick, or Buda automobiles that ran on the tracks. The Oldsmobile track car was known as

Unidentified woman and dog watching Arizona Southern coming into town, 1907. Train is moving forward on the middle switchback on Jesuit Hill just prior to backing into town on the upper switchback. Courtesy Special Collections Division, University of Arizona Library, Tucson, William F. Staunton collection.

the "Speeder" by Silverbell residents, and was primarily used for emergencies and special deliveries.[8]

The initial rolling stock for the railroad, which was leased from Southern Pacific, included two locomotives, two cabooses, a commissary car, a cook car, three dining cars, four bunk cars, and two water cars. Private cars also were used occasionally, including Car No. 14 and the Michigan, which later was renamed the Silverbell.[9]

The water cars were of special importance to the residents of Silverbell. Because of the high mineral content of the local water, all drinking water had to be brought into the town. At first, this was done by freighters on wagons and mule-back. However, once the Arizona Southern Railroad was in operation, water was brought in on the train and offloaded into the camp's water storage tank to be sold to Silverbell residents. The level of impurities was so high in the local water that the train also had to carry a sufficient amount to supply its engines for the round-trip between Red Rock and Silverbell.[10] The Arizona Southern Railroad continued to operate under Asarco's ownership, although not on a continuous basis, until December 30, 1933.[11] At that time, the tracks were removed and sold, and the Sasco smelter was dismantled.

The establishment, growth, and eventual abandonment of Silverbell and the Arizona Southern Railroad were tied closely to the price of copper and the national economy. Making the survival of the mining town even more precarious was the adverse environment in which it was located. The lack of locally available drinking water was the single most prohibitive factor in the growth and expansion of Silverbell, which was a borderline town at best. Even though the railroad was able to provide water for the small community that lived there, the opportunity for a true town to flourish never existed. Thus, the main question of the historic phase of this ongoing research project was answered. The historic mining town of Silverbell and the Arizona Southern Railroad represented an interconnected, interdependent system. The mining community could not have developed as it did without the railroad, and the railroad had no reason to exist once the town and the mines were abandoned.

Notes

1 David F. Myrick, *Railroads of Arizona,* vol. 1 (Berkeley: Howell-North Books, 1975), 384.

2 *Arizona State Business Directory, 1911-1932* (Denver: Gazetteer Publishing Co., n.d.); Laurie V. Slawson and James E. Ayres, *Copper Mining, Railroading, and the Hellhole of Arizona,* Southwest Cultural Series No. 12 (Tucson: Cultural & Environmental Systems, 1992); U.S. Bureau of the Census, Enumeration Schedules for Young America and Silver Bell, Arizona, 1910 (microfilm).

3 *Arizona Business Directory, 1910* (Denver: Gazetteer Publishing Co., 1910); ASARCO, Inc., *The Silver Bell Mine* (N.p., 1975), 1; Myrick, 384.

4 P. A. Lewis, Silver Bell: The Hell Hole of Arizona (Manuscript on file, ASARCO, Inc., 1980), 66.

5 *Arizona State Business Directory, 1931* (Denver: Gazetteer Publishing Co., 1931), 44. Myrick, 394.

6 Myrick, 379.

7 Donald B. Robertson, *Encyclopedia of Western History* (Caldwell, Idaho: Caxton Printers, 1986), 75.

8 Lewis, 60.

9 Myrick, 386.

10 Lewis, 60.

11 Robertson, 74.

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For more information on Aztlan Archaeology's projects, visit the firm's Website at <www.rtd.com/~aztlan/>